

the interest of the NT-ProBNP assay and TROPONIN T in chronic hemodialysis patients

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INTRODUCTION: In chronic hemodialysis patients, the risk of developing heart disease is significant; cardiovascular diseases are responsible for a significant number of deaths. Diagnosis of cardiac damage is often difficult in these patients because cardiac damage biomarkers such as NT-proBNP and cardiac troponin T can be incidentally elevated.

The main objective of this work is to evaluate the predictive value of NT-proBNP in the diagnosis of left ventricular hypertrophy in HDCs at the Avicenne Military Hospital in Marrakech. The secondary objective that we have set is the study of the influence of a dialysis on serum levels of this marker.

MATERIALS AND METHODS :

Prospective study on 73 patients with end-stage chronic renal failure treated by hemodialysis at a rate of 3 sessions. Their routine cardiological follow-ups were provided by the Cardiology Service of the Avicenne Military Hospital in Marrakech during the 12-month period, from January 01, 2017 to December 31, 2017.

RESULTS:

During this period, all age groups are concerned with an average of 43.19, with male predominance with a sex ratio M / F of 1.1, 19 patients present with ATCD of cardiac pathology or 18%. 52% of this population are hypertensive, 47% are diabetics, 45% are smokers, 49% have dyslipidemia and 30% have pathological auscultation.

All patients have concentrations of NT-proBNP greater than 300pg/ml with an average of 7960.65 pg/ml, blood levels of NT-proBNP in patients with cardiac involvement is (8142.61 pg / ml (n = 45) vs 6140, 82pg/ml ± 7163.76 pg / ml (n = 38). The correlation with the parameter predictive of the average values of NTproBNP has objectified a significant correlation with the data of echocardiography: (8142.61 pg / ml (n = 45) vs 6140, 82pg/ml ± 7163.76 pg / ml (n = 38),

The main parameters that predict the average value of NT-proBNP are : Delta P on cardiac ECG and echocardiography taking into account the very high rate in the Chronic hemodialysis patients, the dosage of NT-proBNP with a lingering interest in the diagnosis and monitoring of dialysis cardiomyopathy.

REFERENCES:

1. Signification clinique d'une augmentation de la TrT chez les IRC, France des Jarlies , Annal biol clinique 2004 ;41(1) :3-8.
2. Gardner RS, Ozalp F, Murday AJ, Robb SD, McDonagh TA N-terminal pro-brain natriuretic peptide. A new gold standard in predicting mortality in patients with advanced heart failure. Eur Heart J 2003;24:1735-43.
3. Mueller C, Laule-Kilian K, Scholer A, Nusbaumer C, Zeller T, Staub D, et al. B-type natriuretic peptide for acute dyspnea in patients with kidney disease: insights from a randomized comparison. Kidney Int 2005;67:278-84.

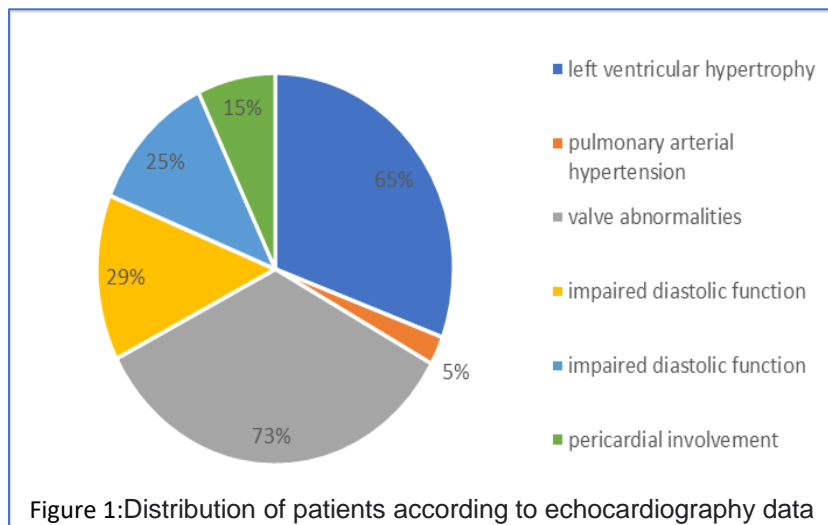


Figure 1: Distribution of patients according to echocardiography data

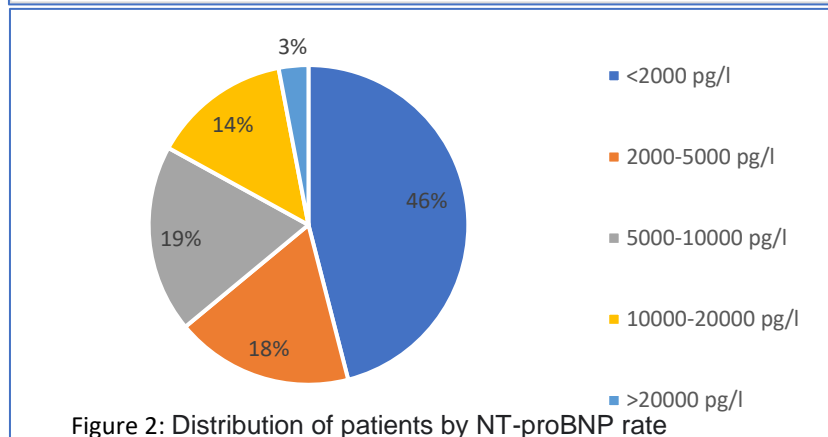


Figure 2: Distribution of patients by NT-proBNP rate

Patients in Group I of the ECG results are correlated with the level of troponin T : 83% vs 16.8% without cardiac involvement, 8% aves cardiac injury. For group II patients the ECG findings are correlated with the level of troponin T without cardiac 13.5% vs.86.5% with cardiac involvement.

There is a correlation between the data rate échocardiographie and troponin T.

For group I 16.8% of cardiac vs. 63.2% without cardiac involvement ancardiac vs. 13.4% without cardiac involvement. and for group II 84% of cardiac vs. 13.4% without cardiac involvement.

DISCUSSION:

The place of NT-proBNP and Troponin T as early indicators of cardiac pathology is well established. However, the levels of these two biomarkers can be found to be significantly elevated in chronic renal failure (CRF) without any obvious symptoms. The optimal practical use of these two parameters then requires that these findings be taken into account, especially since cardiovascular disease and its complications are the main cause of death and disability in the CRF population, hence the particular importance of early detection of cardiac involvement in these patients with a view to timely treatment thus avoiding complications with serious consequences for the patient.

CONCLUSION:

this study confirms that TnT and NT-proBNP levels are frequently elevated in chronic hemodialysis patients, even in the absence of obvious cardiac involvement. A number of cardiovascular risk factors may be correlated with this elevation and may constitute independent prognostic markers in these patients